Access DB# 81683

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Jeffrey E. Russel Examiner #: 62785 Date: 12-4-2002
Art Unit: 1654 Phone Number 30 8-3975 Serial Number: 09/815,978
Mail Box and Bldg/Room Location: CM1-11D13/CM1 9807 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

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Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

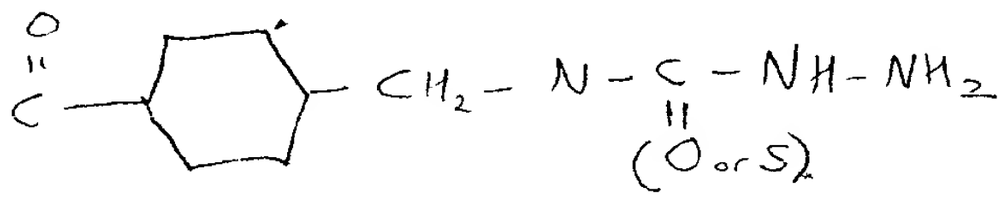
Title of Invention: Hydrazine-Based And Carbonyl-Based Bifunctional Crosslinking Regents

Inventors (please provide full names): D. Schwartz

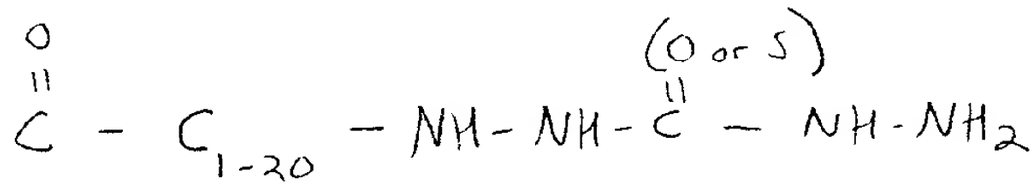
Earliest Priority Filing Date: 3-22-2001

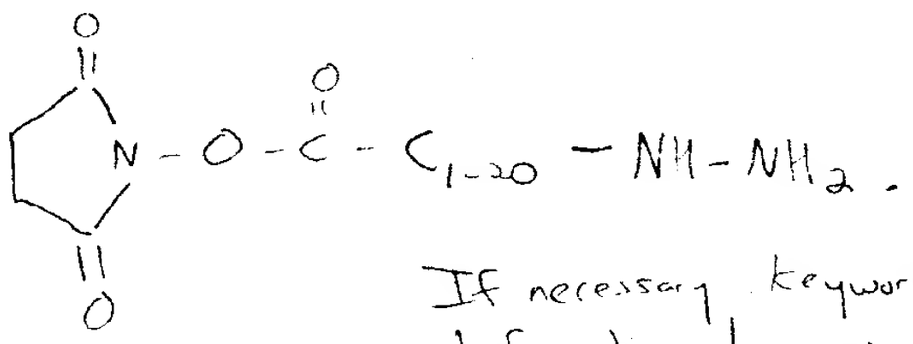
**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Please search the following partial structure:



Cyclohexyl group.





If necessary, keywords are conjugat?, crosslink?, bifunctional, antibody, immobili?. Thank you. JER

Edward Hart
Technical Info. Specialist
STIC/Biotech
CMI 6B02 Tel: 305-9203

RECEIVED DEC 12 2002

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Searcher: _____
Searcher Phone #: _____
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Date Completed: 12/12/02
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Clerical Prep Time: _____
Online Time: _____

Type of Search

NA Sequence (#) _____
AA Sequence (#) _____
Structure (#) _____
Bibliographic _____
Litigation _____
Fulltext _____
Patent Family _____
Other _____

Vendors and cost where applicable

STN _____
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Questel/Orbit _____
Dr Link _____
Lexis/Nexis _____
Sequence Systems _____
WWW/Internet _____
Other (specify) _____

PTO-1590 (8-01)

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PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY (ACS)
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FILE COVERS 1907 - 12 Dec 2002  VOL 137 ISS 24
FILE LAST UPDATED: 11 Dec 2002  (20021211/ED)

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CAS roles have been modified effective December 16, 2001. Please
check your SDI profiles to see if they need to be revised. For
information on CAS roles, enter HELP ROLES at an arrow prompt or use
the CAS Roles thesaurus (/RL field) in this file.

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L1                  STR
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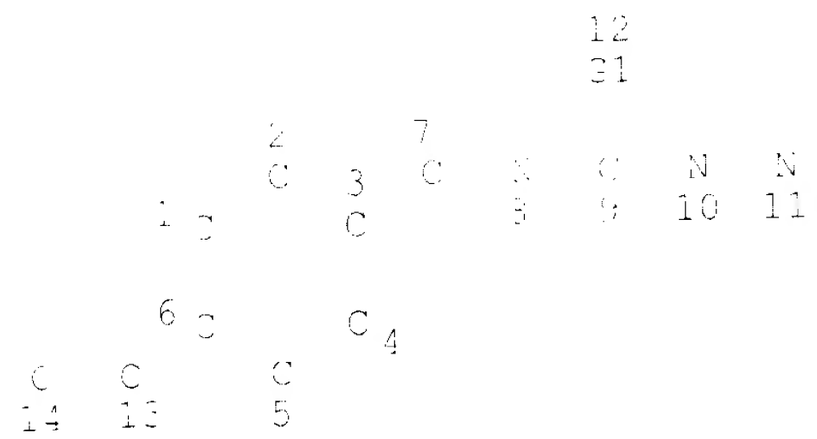


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DEFAULT ECLEVEL IS LIMITED

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STEREO ATTRIBUTES: NONE
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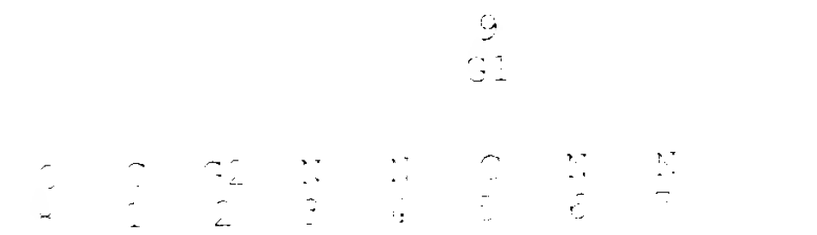


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STEREO ATTRIBUTES: NONE
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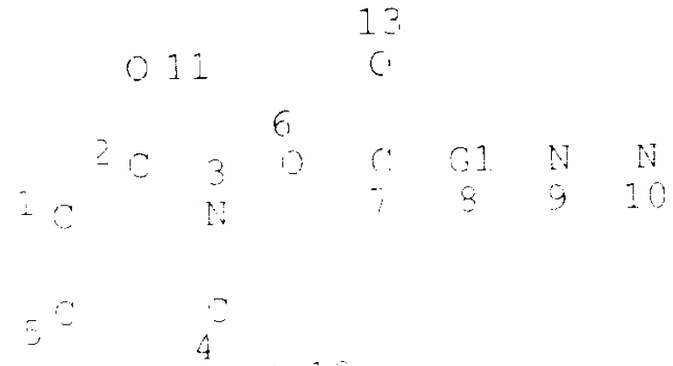

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DEFAULT ECLEVEL IS LIMITED

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STEREO ATTRIBUTES: NONE
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L14 44 SEA FILE=HCAPLUS ABB=ON PLU=ON L11
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? OR BIFUNCTIONAL? OR ANITBOD? OR AB# OR MAB# OR PAB# OR
IMMOBILI?)
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? OR BIFUNCTIONAL? OR ANITBOD? OR AB# OR MAB# OR PAB# OR
IMMOBILI?)
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? OR BIFUNCTIONAL? OR ANITBOD? OR AB# OR MAB# OR PAB# OR
IMMOBILI?)
L19 10 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 OR L17 OR L18

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L19 ANSWER 1 OF 10 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2001:713305 HCAPLUS
DOCUMENT NUMBER: 135:272864
TITLE: Hydrazine-based and carbonyl-based **bifunctional crosslinking** reagents for biomolecules, drugs, and synthetic polymers
INVENTOR(S): Schwartz, David A.
PATENT ASSIGNEE(S): Solulink, Inc., USA
SOURCE: PCT Int. Appl., 97 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2

RUSSEL 09 / 815978

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001070685	A2	20010927	WO 2001-US9252	20010322

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

US 2002146504	A1	20021010	US 2001-[illegible]	[illegible]

PRIORITY APPLN. INFO.: US 2000-191186P P 20000322
US 2001-262094P P 20010116

OTHER SOURCE(S): MARPAT 135:272864

AB Reagents and methods are provided for **bifunctional** **crosslinking** and **immobilizing** biomols., drugs, and synthetic polymers. The reagents of formula BRANHNH2•HX [wherein A = NHCO, NHCS, NHNHCO, NHNHCS, or a direct bond; B = an amino or thio reactive moiety; R = specified aliphatic divalent groups containing any combination of cycloalkylene, C(R10)2, CR10:CR10, C:CR12R13, CR12R13, C.tplbond.C, O, SGa, NR10, N-R12R13, CL, etc.; a = 0-2; b = 0-3; G = O or NR10; L = S, O, or NR10; R10 = specified monovalent groups; R12 and R13 = independently H, (cyclo)alkyl, alkenyl, alkynyl, or (hetero)aryl; or R12 and R13 together from (cyclo)alkylene or alkenylene; X = neg. counterion; or a derivative thereof] possess a thiol or amino reactive group and a hydrazino or oxyamino moiety. Conjugates and **immobilized** biomols. are also provided. For example, hydrazinonicotinic acid was converted to the acetone hydrazone and treated with N-hydroxysuccinimide to give the **crosslinking** agent, succinimidyl 6-hydrazinonicotinate acetone hydrazone (I), in 33% yield. A solution of ovalbumin in PBS and EDTA was added to a solution of I in DMF and the mixture incubated at room temperature for 4 h to afford the hydrazine-modified protein, which exhibited a molar extinction coefficient of 22,000 at 360 nm.

IT **362522-51-8P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(**crosslinking** agent; preparation of hydrazine- and carbonyl-based **bifunctional** **crosslinking** agents and use with biomols., drugs, and synthetic polymers)

L19 ANSWER 2 OF 10 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1993:617414 HCAPLUS
DOCUMENT NUMBER: 119:217414
TITLE: Peptide aldehyde analogs for trypsin inhibitors
INVENTOR(S): Brunck, Terence Kevin; Pepe, Michael Gary; Pearson, Daniel Andrew; Webb, Thomas Roy
PATENT ASSIGNEE(S): Corvas International, Inc., USA
SOURCE: PCT Int. Appl., 61 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9314779	A1	19930805	WO 1993-US906	19930129

W: CA, JP
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

EP 627925 A1 19941214 EP 1993-[illegible] [illegible]
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, [illegible]
JP 07503715 T2 19950420 JP [illegible] [illegible]
US 5534498 A 19960709 US [illegible] [illegible]
PRIORITY APPLN. INFO.: US [illegible] [illegible]
US 1993-11666 [illegible]
WO 1993-US906 [illegible]

OTHER SOURCE(S): MARPAT 119:217214

AB Peptide aldehyde analogs are disclosed which have substantial potency and specificity as inhibitors of mammalian pancreatic trypsin. The compds. of the invention are useful in the prevention and treatment of tissue damage or destruction associated with pancreatitis. Preparation of the analogs is described. Thus, N-t-butoxycarbonyl-L-Asp-L-Pro-L-argininal (I) (preparation given) had a Ki against trypsin of 0.00045 μM. The effectiveness of I in an animal model for pancreatitis was also demonstrated.

IT **139976-30-0P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and **immobilization** of, in peptide aldehyde analog preparation for trypsin inhibitor)

IT **139976-26-4P 139976-27-5P 139976-29-7P**
139976-30-0DP, solid phase-**immobilized**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and reaction of, in peptide aldehyde analog preparation for trypsin inhibitor)

L19 ANSWER 3 OF 10 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1992:612932 HCAPLUS
DOCUMENT NUMBER: 117:212932
TITLE: Total synthesis and absolute configuration of bengamide A
AUTHOR(S): Chida, Noritaka; Tobe, Takahiko; Okada, Shinsuke; Ogawa, Seiichiro
CORPORATE SOURCE: Fac. Sci. Technol., Keio Univ., Yokohama, 223, Japan
SOURCE: Journal of the Chemical Society, Chemical Communications (1992), (15), 1064-6
CODEN: JCCCAT; ISSN: 0022-4936
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 117:212932
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The first total synthesis of the novel marine natural product, bengamide A (I) is described, revealing the **absolute** configuration of this compound. I was prepared in several steps from known ester II (Boc = [illegible]), which can be obtained from L-glutamic acid in 4 steps. Key steps were the cyclization of active ester III to give hexahydro-2-azepinone IV (R1 = CH2Ph, R2 = Boc) and the coupling of IV.CF3CO2H (R1 = R2 = H) with polyhydroxylated C11 side chain V by (EtO)2P(O)CN to give the corresponding amide.

IT **144090-64-2P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and cyclization of)

L19 ANSWER 4 OF 10 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1991:425407 HCAPLUS

DOCUMENT NUMBER: 115:25407
TITLE: Novel trifunctional carrier molecule for the fluorescent labeling of haptens
AUTHOR(S): Breeden [illegible]st, Reinhard; Werhoff, Gregory A.; [illegible], Anne M.; Charles, Paul T.; Thompson, M. Susan P.; Lugler, Frances C.; Vogel, Carl Wilhelm
CORPORATE SOURCE: Dep. Biochem. Mol. Biol., Georgetown Univ., Washington, DC, 20007, USA
SOURCE: Analytical Biochemistry (1991), 198(2), [illegible]
CODEN: ANBCA2; ISSN: 0003-2697
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The authors developed a novel trifunctional carrier mol. for the synthesis of hapten-fluorophore conjugates as reporter mols. in immunoassays. Use of carrier eliminates some of the disadvantages associated with currently used fluorophore-labeling procedures including high nonspecific binding. The backbone of the carrier consists of the 21 amino acid residues of the insulin A-chain mol. This polypeptide provides a single site (terminal amino group) for covalent coupling of the hapten, three carboxyl groups for the attachment of fluorophores, and four sulfhydryl groups for derivatization with hydrophilic residues to compensate for the hydrophobic effect of the attached fluorophores. The sites for fluorophore attachment are 4, 17, and 21 amino acids away from the napten attachment site. This spatial separation minimizes quenching of the fluorescence signal due to interaction of the fluorophores with each other and with the attached hapten. 2,4-Dinitrophenol (DNP) was selected as model hapten, fluorescein as label, and S-sulfonate groups as hydrophilic residues. The properties of the DNP-insulin A-chain-fluorescein conjugate (DNP-Ins-Fl) were compared to those of a DNP derivative labeled with a single fluorescein moiety via a small lysine spacer (DNP-Lys-Fl). The DNP-Ins-Fl conjugate exhibited a 5-fold lower nonspecific adsorption to **immobilized** non-immune Ig control than an approx. 3-fold more efficient displacement from the binding sites of an **immobilized** monoclonal anti-DNP antibody by the soluble DNP-lysine. Furthermore, at equimolar concns. the DNP-Ins-Fl generated a 2.6-fold higher fluorescent signal than DNP-Lys-Fl. Due to these properties of DNP-Ins-Fl, DNP-lysine could be detected with an approx. 10-fold higher sensitivity compared to DNP-Lys-Fl as labeled antigen. The use of DNP-Ins-Fl as reporter molecule in a competitive fluoroimmunoassay allowed the quant. determination of picomole amts. of DNP-lysine.

IT **134664-50-9**
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with FITC)

L19 ANSWER 5 OF 10 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1991:42471 HCAPLUS
DOCUMENT NUMBER: 115:24241
TITLE: Preparation and characterization of immunoconjugates for antibody-targeted photolysis
AUTHOR(S): Pakestraw, Scott L.; Tompkins, Ronald G.; Yarmush, Martin L.
CORPORATE SOURCE: Cent. Adv. Biotech. Med., Rutgers, [illegible], Piscataway, NJ, 08855, USA
SOURCE: Bioconjugate Chemistry (1991), 2(5), 314-21
CODEN: BCCHE6; ISSN: 1043-1802
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Monoclonal antibody (**MAb**)-dextran-tin(IV) chlorin e6(SnCe6) immunoconjugates were prepared by a new technique involving the use of reducing terminal-modified dextran carriers and site-specific modification of the Fc oligosaccharide moiety on the antibodies. Dextran carriers were synthesized to increase the number of SnCe6 mols. attached to a **MAb**

. The dextran carriers were coupled to the **MAb** via a [illegible] hydrazide group in [illegible] of **MAbs**. Conjugates were prepared with anti-melanoma **MAb** 2.1 [illegible] 12.9 SnCe6 mols. per **MAb**. Under neutral conditions, the hydrolysis of the hydrazone bond between the **MAb** and the dextran carrier could be detected, and the hydrazone was [illegible] with $NaCNBH_3$ or $NaBH_4$. Anal. of the purified immunoconjugates showed that approx.2 dextran carrier chains were attached to a **MAb** regardless of the number of SnCe6 mols. linked to a dextran carrier. Site-specific covalent attachment of the SnCe6-dextran chains to the **MAb** was confirmed by SDS-PAGE. HPLC anal. of the conjugates gave a single species eluting in the range of 200-240 kDa. As determined by a competitive inhibition EIA using viable SK-MEL-2 human malignant melanoma cells, the conjugates showed excellent retention of antigen-binding activity relative to unconjugated **MAb**.

IT **127381-73-1P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and hydrazinodextran terminal hydrazide protection by)

L19 ANSWER 6 OF 10 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 19[illegible]:13710 HCAPLUS
DOCUMENT NUMBER: 8[illegible]:[illegible]
TITLE: Production of a foam material
INVENTOR(S): [illegible]mi, Naoshi; Nakamura, Tsunitaro
PATENT ASSIGNEE(S): [illegible]tika Co., Ltd.
SOURCE: Jpn. Tokkyo Koho, 2 pp.
CODEN: JAXXAD
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 47051944	B4	19[illegible]1227	JP 1969-88917	19691106

AB (α-Acetylethylidene) carbohydrazide (I) [**50883-75-5**] (CH3COC(ME):NNHCONHNH2, which generated nontoxic, odorless, nonflammable gas on decomposition was used as a blowing agent for manufacture of polymer foams.
Thus, 93 parts **ABS** copolymer [9003-56-9] was dry-blended with [illegible] parts I and injection molded at die temperature 200[illegible] at [illegible] foam having uniform small cells and an apparent sp.gr. [illegible].

IT **50883-75-5**
RL: USES (Uses)
(blowing agents, for manufacture of polymer foams)

L19 ANSWER 7 OF 10 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1967:75807 HCAPLUS
DOCUMENT NUMBER: 66:75807
TITLE: Preparation of terephthaloyl diisocyanate
AUTHOR(S): Weidlein, Richard; Bottler, Rainer
CORPORATE SOURCE: Univ. Marburg-Lahn, Marburg-Lahn, Ger.
SOURCE: Chem. Ber. (1967), 100(2), 698-700
CODEN: CHBEAM
DOCUMENT TYPE: Journal
LANGUAGE: German
GI For diagram(s), see printed CA Issue.
AB p-C6H4(CONHNH2)2 (32.8 g.) in 200 cc. dry CCl4 refluxed about [illegible] hrs. with 152.4 g. (COCl)2 gave 46.2 g. p-C6H4(CONHNHCOCOCl)2 (I), m. [illegible]. I (2.7 g.) in 60 cc. tetrahydrofuran treated with cooling with [illegible] absolute MeOH and stirred 1 hr. at room temperature yielded [illegible] p-C6H4(CONHCO2R)2 (II) (R = Me). Similarly prepared [illegible] R, m.p., decomposition, and [illegible] yield given: Et, [illegible]; Pr, [illegible]

208-9°, 95; MeOCH2CH2, 159-60°, 92; Ph, 178-9°, 67.
Similarly prepared were p-C6H4(CONHCOX)2 (III) (X = SPh), m. [illegible] (decomposition), 89 ; III (X = NHCH2CH(OEt)2), 85 , m. 227-9° (decomposition), from MeOCH2CH2OH; and III (X = NHNHPh), [illegible] , m. [illegible] 360 (PhCN). I (3.64 g.) in 30 cc. dry tetrahydrofuran treated dropwise with stirring with 17.1 cc. 8.5% dry HN3-C6H6 gave 4 g. III (X = N3), m. 234-5°. I (2.4 g.) in 50 cc. dry tetrahydrofuran treated with stirring and cooling with 1 equivalent [illegible] 252-3° (MeOCH2CH2OH).

IT **13506-12-2P 14994-19-5P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

L19 ANSWER 8 OF 10 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1967:5[illegible] HCAPLUS
DOCUMENT NUMBER: 66:557[illegible]
TITLE: Hydrazine compounds as heteroconstituents in peptides. VII. Synthesis of derivatives and peptides of DL-α-hydrazino-β-phenylpropionic acid (NHPhe)
AUTHOR(S): Grupe, Renate; Niedrich, Hartmut
CORPORATE SOURCE: Deut. Akad. Wiss., Berlin, Ger.
SOURCE: Chem. Ber. (1966), 99(12), 3914-24
CODEN: CHBEAM
DOCUMENT TYPE: Journal
LANGUAGE: German

AB cf. CA 64, 307c. The following abbreviations are used: NHPhe = α-hydrazino-β-phenylpropionic acid or -propionyl; NHGly = hydrazinoacetic acid or -acetyl; BOC = tert-BuO2C; Z = PhCH2O2C; DCCI = dicyclohexylcarbodiimide; OEt = Et ester; OMe = Me ester; OSu = hydroxysuccinimide ester; ONP = p-nitrophenyl ester; THF = tetrahydrofuran; DMF = HCONMe2. To 8.2 g. DL-NHPhe-OEt.HCl (CA 64, [illegible]) in 40 cc. **absolute** EtOH was added 5.4 cc. Et3N and the product heated with 7.5 g. BOC-N3 [illegible] hrs. at [illegible] to give [illegible] DL-RNHNHCH(CH2Ph)COX (I) (R = BOC, X = OEt) (II). Free NHPhe [illegible] g. in 10 cc. EtOAc let stand [illegible] hrs. at room temperature with 1.57 g. BOC-N3 gave 1.[illegible] g. II. II (1.54 g.) in 20 cc. MeOH treated during 30 min. with 10 cc. N NaOH gave 1.3 g. I (R = BOC, X = OH) (III). A solution of 1.80 g. NHPhe in 6 cc. 2N NaOH and 10 cc. dioxane stirred 24 hrs. at 35° with 1.57 g. BOC-N3 and 0.05 g. MgO gave 1.3 g. III. II (1.54 g.) in 10 cc. saturated MeOH-NH3 let stand 2 days, with 100 mg. 1,2,4-triazole gave 0.43 g. I (R = BOC, X = NH2) (IV). To 1.54 g. II in 10 cc. **absolute** MeOH were added 100 mg. 1,2,4-triazole and 1 cc. 100% N2H4.H2O and, after 2 days the MeOH was evaporated to give 1.35 g. I (R = BOC, X = N2H3) (V). To 33 g. PhCH2OH in 125 cc. **absolute** C5H5N was added 61 g. ClCO2C6H4NO2-p at 0-5° with stirring and the reaction solution stirred 3 hrs. at room temperature to give 38.3 g. Z-ONP. Free NHPhe-OEt from 2.08 g. HCl salt treated with 2.73 g. Z-ONP like II (BOC-ONP procedure) gave 3.2 g. crude I (R = Z, X = OEt) (VI), decomposing on distillation. Crude VI (1.[illegible] g.)
saponified like
III (MeOH-aqueous NaOH method) gave 1.35 g. I (R = Z, X = OH) [illegible] [illegible] g.) in 12.[illegible] cc. [illegible] treated during [illegible] and 12.5 cc. 2N NaOH with ice cooling (the pH was kept at [illegible]), and the mixture stirred 30 min. gave 4.[illegible] g. VII. [illegible] (1 g.) treated with [illegible] MeOH-NH3 and 1,2,4-triazole like IV gave [illegible].3 g. I (R = Z, X = NH2). [illegible] (1.[illegible] g.) treated like V gave [illegible] g. I (R = Z, X = N2H3). Free DL-NHPhe-OEt (from 3.03 g. HCl salt) kept 30 min. in 15 cc. Me2CO gave 2.6 g. DL-Me2C:NNHCH(CH2Ph)CO2Et. III (1.4 g.) in 12 cc. DMF treated with 0.58 g. N-hydroxysuccinimide (VIII) and then at 0° with 1.03 g. DCCI and the reaction mixture kept 60 hrs. at 0° gave 1.5 g. I (R = BOC, X = OSu) (VIIIa). VII (3.14 g.) and 1.15 g. VIII in 15 cc. THF treated with 2.06 g. DCCI 24 hrs. at 0° gave 0.4 g. I (R = Z, X = OSu).
DL-NHPhe-OEt.HCl (1.83 g.) suspended in 14 cc. THF, treated with [illegible] g.

Et3N with ice cooling, the product treated with [illegible] with 1.92 g. DCCI with ice cooling, and the mixture kept [illegible] at 0° gave 1.65 g. Nβ- Z-Gly--LNHPhe-[illegible] (IX, R = [illegible], X = [illegible] NHPhe-OEt (from 2 g. HCl salt) in [illegible] cc. MeCN kept 24 hrs. at room temp. with 6.2 g. Z-Gly-OCH2CN gave 9.1 g. R, m. 86-8°. X (2 g., saponified like III gave 1.5 g. IX (R = OH). X 3.99 g.) in 10 cc. **absolute** MeOH kept 3 days with 2.5 cc. 100% N2H4.H2O and .apprx.100 mg. 1,2,4-triazole gave 2 g. IX (R = N2H3). Free DL-NHPhe-OEt (from 2.4 g. HCl salt) and 2.1 g. Z-L-Ala in 30 cc. MeCN treated portionwise with 2.46 g. DCCI 24 hrs. at 0°, 3 drops AcOH added, and the mixture let stand 2 hrs., gave 3.4 g. Nβ- Z-L-Ala -DL-NHPhe-R XI) (R = OEt, XII). Free NHPhe-OEt (2.0 g.) in 5 cc. CHCl3 combined with 3.44 g. Z-L-Ala-ONP in 6 cc. CHCl3, 0.3 cc. AcOH added, and the solution kept 48 hrs. at room temperature gave 3.5 g. XII. XII (1.03 g.) saponified like III (MeOH-aqueous NaOH

method) gave 0.62 g. XI (R = OH). XII (1.03 g.) in 8.4 cc. **absolute** AcOH heated 40 min. at 45° with 4.6 cc. .apprx.4N HBr-AcOH gave (.77 g. Nβ- L-Ala -DL-NHPhe-OEt.HBr (XIII.HBr), m. 206-11° **absolute** EtOH). XIII.HBr (0.4 g.) in 4 cc. DMF treated with [illegible] Et3N and then [illegible] .17 g. Z-L-Asp-ONP [illegible] Nβ- Z-L-Asp-L-Ala -DL-NHPhe-OEt. To [illegible] added 0.425 g. Et3N at -15° to -5° until pH 7 was attained, followed during 10 min. by 0. g. ClCO2Et, the solution stirred .apprx. min. at -5°, treated with a precooled solution of 2.0 g. X in 12.5 cc. THF at -15°, stirred 30 min. at -5°, and refrigerated 3 days at 0° to give 7.5 g. Z-Gly-NHNHCH(CH2Ph)COX (XIV) (R = Z-Gly, X = OEt) (XV). To 2 g. X and 1.04 g. Z-Gly in 30 cc. MeCN was added 1.23 g. DCCI with stirring and ice cooling and the solution let stand 20 hrs. at 0°, to give 0.4 g. XV. To 3.49 g. X in 20 cc. **absolute** C5H5N were added simultaneously 2.2 g. p-tosyl chloride and 1.66 cc. Et3N with ice cooling to give 4.5 g. XIV (R = p-tosyl, X = OEt) (XVI). XVI (1.2 g.) dissolved in 1. cc. **absolute** MeOH by heating, the solution cooled, treated with .apprx.100 mg. 1,2,4-triazole and 0.76 cc. 100% N2H4.H2O, and let stand 4 days at room temperature gave 0.1 g. XIV (R = p-tosyl, X = N2H3). The mixed anhydride from 1.0 g. Z-Gly and 1. g. ClCO2Et treated with a precooled solution of 3.5 g. II in 25 cc. THF as described for XV gave 1.4 g. crude Nβ-BOC-α-(Z-Gly--DL-NHPhe-OEt XVII). Nβ-tert-butyloxycarbonyl-DL-α-hydrazino-β-phenylpropionyl amino acid esters was prepared as follows: Method A. To 5 millimoles appropriate amino acid ester-HCl in 4 cc. DMF was added 0. [illegible]. Et3N with stirring and ice cooling, precipitated Et3N.HCl filtered and washed with 1 cc. DMF, the filtrate added to a solution of 1.4 g. III in 10 cc. DMF, 1.3 g. DCCI added at 5° and the solution kept .apprx.60 hrs. at 0° to give the corresponding heterotripeptide ester. Method B. A solution of 5 millimoles amino acid ester prepared as in Method A) combined with a solution of 1.88 g. VIIIa in 10 cc. THF, and kept .apprx.60 hrs. at 0-5° gave 95-100% corresponding heterodipeptide ester. Thus, with Gly-OEt, there was obtained 91% by method A) and 100% by method B) Nβ-BOC-DL-NHPhe-Gly-OEt (XVIII). From L-Leu-OMe was obtained 70% (method A) and 95% method B) diastereoisomeric mixture of Nβ-BOC-DL-NHPhe-L-Leu-OMe. L-Ile-Gly-L-Leu-L-Met-NH2 (Luebke, et al., JA 62, 4116e) (0.167 g.), 1 millimole Et3N, and 1 millimole VIIIa in 4 cc. DMF let stand 60 hrs. at 20-5° and diluted with H2O gave 0.62 g. Nβ-BOC-DL-NHPhe-L-Ile-Gly-L-Leu-L-Met-NH2. A solution of 3.3 millimoles L-Ile-OMe (prepared as in method A) combined with a solution of 1.[illegible] g. XI (R = OH) in 6 cc. DMF, and treated further like method A gave 1.[illegible] g. Nβ- Z-L-Ala -DL-NHPhe-L-OMe. XVIII (1.82 g.) in 20 cc. MeOH combined with a solution of 0.2 g. NaOH in 50 cc. H2O, a solution [illegible] NaOH

in 50 cc. H2O and 20 cc. MeOH added dropwise during 2 hrs. while maintaining the pH at 8-9 gave 1.1 g. Nβ-BOC-DL-NHPhe-Gly-[illegible] XIX. XIX [illegible] g. in [illegible] cc. THF treated first with [illegible] with 0.55 g. DCCI overnight at [illegible], gave [illegible] g.

Nβ-BOC-DL-NHPhe-Gly-OEt, m. 90-2°.

IT **14381-16-9P 14381-17-0P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

L16 ANSWER 9 OF 10 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1965:438638 HCAPLUS
DOCUMENT NUMBER: 63:38638
ORIGINAL REFERENCE NO.: 63:6854h,6855a
TITLE: Synthesis of 1,3-bis[bis(carboxymethyl)amino]-
AUTHOR(S): Ermakova, M. I.; Podgornaya, I. V.; [illegible], N. V.; Postovskii, I. Ya.
CORPORATE SOURCE: Chem. Inst., Sverdlovsk
SOURCE: Zh. Organ. Khim. (1965), 1(5), 857-60
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB (MeO2CCH2)2NNH2.HCl treated with aqueous NaOH gave the free ester, b8 124-5°, n20D 1.4562, d4 1.1930 [p-nitrobenzylidene derivative m. 75-7°; hydrazone with p,N-bis(β-chloroethyl)aminobenzaldehyde m. 74-8°; picrate m. 116-8°. This kept 3-4 hrs. in EtOH-NH3 with CS2 gave 68% (MeO2CCH2)2NNHCS2NH4, m. 102-4°, which adjusted to pH 3 with HCl gave the free acid, m. 82-4°, unstable in storage. This heated in absolute EtOH 50 min. gave SC[NHN(CH2CO2Me)2]2, m. 86-8°, which refluxed 1 hr. in 10% HCl gave 33% SC[NHN(CH2CO2H)2]2, decomposes 190-3°. The polarograms of the salts of this acid with 13 common metal ions were reported. This acid in weakly basic medium can complex many metals a such as Fe, Co, Ni, Mn, Cr(IV), and Cd. The complex forming tendency is weaker in acid media.
IT **2215-00-1**, Acetic acid, [thiocarbonylbis(hydrazinylylidene)]tetra-
(preparation and polarography of its metal complexes
IT **2509-12-8**, Acetic acid, [thiocarbonylbis(hydrazinylylidene)]tetra-, tetramethyl ester
preparation of

L19 ANSWER 10 OF 10 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1964:469149 HCAPLUS
DOCUMENT NUMBER: 61:69149
ORIGINAL REFERENCE NO.: 61:11999e-h,11999a-h,12000a-h,12001a-h,12002a-h
TITLE: Syntheses of nitrogen-containing heterocycles. XXV. α-Chloro oximes. 2
AUTHOR(S): Dornow, Alfred; Marquardt, Hans Heinrich; Paucksch, Heinrich
CORPORATE SOURCE: Tech. Hochschule, Hannover, Germany
SOURCE: Ber. (1964), 97(8), 2165-8
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
GI For diagram(s), see printed CA Issue.
AB cf. CA 59, 2660h, 8386f. α-Chloro oximes with Ba(SCN)2 (I) [illegible] 2-aminothiazole 3-oxides (II). The 4-Me homologs of II with [illegible] 2-amino-4-hydroxymethyl- and 4-chloromethylthiazoles. α-Chloro oximes with EtOCS2K gave α-ethoxythiocarbonylthio oximes which cyclized to 2-mercaptothiazole 3-oxides. PhCHClCCl:NOH (III) 11.6 g. in 20 cc. EtOH refluxed 1 hr. with 2.8 g. I in 15 cc. EtOH yielded 3.1 g. IV (R = Ph), m. 181° (H2O). p-ClC6H4CHClCCl:NOH (4.1 g.) in 30 cc. EtOH treated 2 days at room temperature with 2.8 g. I in 15 cc. EtOH yielded 4.4 g. IV (R = p-ClC6H4), V), m. 208° (EtOH). IV (R = Ph) (1 g.) in 25 cc. 2N HCl heated 0.5 hr. on a water bath with 2 g. Zn dust yielded 0.5 g. 2-amino-4-methyl-5-phenylthiazole (VI), m. 163° (aqueous MeOH). V (4 g.) in 20 cc. (CH2Cl)2 treated at room temperature with 1.6 cc. AcCl yielded 2.4 g. 2-amino-3-acetoxy-4-methyl-5(p-chlorophenyl)thiazolium chloride, m. 130° (decomposition). V (2 g.) in 150 cc. (CH2Cl)2 refluxed 1 hr. with

1.4 g. AcCl gave 0.6 g. 2-amino-4-Ph, 5-methyl-1-[p-chlorophenyl]thiazole, m. 266° (decomposition) (C6H6), and 2.4 g. 2-amino-4-hydroxymethyl-5-(p-chlorophenyl)thiazole, m. 190° (C6H6-EtOH). EtOCS2K (3.2 g.) in 25 cc. EtOH added to 3.[illegible] g. [illegible] cc. EtOH and poured after 1 hrs. into 400 cc. H2O yielded 4.1 g. 1-ethoxythiocarbonylthio-2-oximino-1-phenylpropane (VII), m. 125° (aqueous EtOH). VII (3.5 g.) and 30 cc. 2N NaOH heated 20 min. at [illegible] gave 2 g. 2-SH analog (VIII) of IV (R = Ph), m. 143° (MeOH). VIII (0.6 g.), 5 cc. HI (d. 1.9), and 0.3 g. red P refluxed 20 min. yielded 0.4 g. 2-SH analog of VI, m. 144° (MeOH). XXVI. Use of α-amino oximes in the preparation of imidazole 3-oxides. Alfred Dornow and Hans Heinrich Marquardt. Ibid. 2169-72. α-Amino oximes react with ClCO2Et (I) and ClCO2Et (II) on the NH2 group to yield the corresponding urethans and thiourethans, resp. The free carbamic acids, obtained by alkaline saponification of the urethans and thiourethans, eliminate CO2 and COS, resp., to yield with cyclization imidazole 3-oxides. MeC(:NOH)CMe2NH2 (1.1 g.) in 30 cc. C6H6 treated at room temperature with stirring with 0.8 g. I in 10 cc. C6H6 gave 0.8 g. EtO2CNHCMe2CMe:NOH (III), m. 113° (petr. ether-C6H6). III (0.3 g.) in 10 cc. 5N NaOH refluxed gave 0.5 g. 2-hydroxy-4,5,5-trimethylimidazole 3-oxide, m. 238° (H2O). PdCl2 (0.1 g. in [illegible] cc. 6N HCl added to 3 g. C in 50 cc. H2O, and the mixture saturated with H gave the hydrogenation catalyst. [illegible] was stirred under MeOH. AcPhC:NOH (8.2 g.) in 80 cc. absolute MeOH and 1 cc. 10% HCl-MeOH hydrogenated at room temperature over 1.5 g. catalyst yielded 8.1 g. AcPhCHNH2.HCl (IV), m. 201° (decomposition). IV (9.3 g.) and 7 g. NH2OH.HCl in 30 cc. H2O treated rapidly with stirring with 16.5 g. AcONa in 40 cc. H2O (heated to 100°) gave 10.1 g. PhCH(NHAc)CMe:NOAc, m. 167° (iso-PrOH), which in 80 cc. H2O treated with 1.5 g. Na2CO3 in 15 cc. H2O and extracted with CHCl3 yielded 6.7 g. PhCH(NH2)CMe:NOH (V), m. 74° (CHCl3-petr. ether), 76° (MeOH). V (3.5 g.) in 100 cc. C6H6 treated slowly with stirring with 1.1 g. I in 25 cc. C6H6 yielded 1.[illegible] g. EtO2CNHCH(Ph)CMe:NOH, m. 136° (C6H6-petr. ether), which heated 10 min. on a water bath with 10 cc. 5% NaOH gave [illegible] g. VI, m. 142° (MeOH). VI (0.6 g.) in 30 g. 80% AcOH refluxed 3 hrs. on a water bath with 4 g. Zn dust gave 0.4 g. 2-hydroxy-4-methyl-5-phenylimidazole, m. 285° (aqueous EtOH). V (3.26 g.) in 100 cc. C6H6 treated slowly with stirring with 1.24 g. II in 30 cc. C6H6, stirred 1 hr., filtered from the HCl salt, m. 216°, and evaporated, and the viscous, yellow residue heated 4 hrs. on a water bath with 10 cc. 5N NaOH yielded 0.1 g. 4-SH analog of VI, m. 261° (aqueous MeOH). [illegible]. Preparation of sym-as-triazines. Alfred Dornow, Herbert Hensel, and Hans Heinrich Marquardt. Ibid. 2173-8. S(CNHNH2)2 (I) with α-oxo acids gave 4-amino-3-mercapto-3-thioxo-5,6,7,8-tetrahydro-as-triazines (II) which formed, via the corresponding MeS compds., with amines 3,4-diamino-4,5-dihydro-as-triazines (III). II were converted readily with HCO2H or Ac2O into 3,7-dihydro-s-triazolo[3,4-c]-as-triazines (IV). I (53 g.) in 500 cc. boiling H2O treated slowly with 44 g. AcCO2H and kept 3 hrs. at room temperature yielded 75 g. II (R = Me) (V), m. 186° (H2O). I (1.06 g.) in 50 cc. boiling H2O with 1.5 g. PhCO2H gave 2.1 g. II (R = Ph) (VI), decomposes 181° (H2O). V (1 g.) in 1 cc. boiling MeOH treated with 1 cc. BzH and refluxed 0.5 hr. yielded 1.3 g. 4-PhCH:N analog of V, m. 264-6° (C6H6). V (1 g.) in 10 cc. C5H5N treated 3 hrs. with 1 cc. AcCl gave 0.8 g. di-Ac derivative of V, m. 142° (C6H6). V (3.1 g.) and 1.6 g. NaOH in 30 cc. H2O stirred 6 hr. with 1.3 cc. MeI yielded 2.7 g. H2NNHC(SMe):NN:CMeCO2H (VII), m. 145-7° (aqueous MeOH). VII in 70 cc. MeOH refluxed 5 hrs. gave 1.7 g. VIII (R = Me), IV, m. 165° (MeOH). V (15.7 g.) and NaOMe from 4.5 g. Na and 150 cc. absolute MeOH refluxed 3.5 hr. with 6.5 g. MeI yielded 11.5 g. VI, m. 165° (H2O). VI (22 g.) and NaOMe from 2.3 g. Na and 150 cc. absolute MeOH treated during 10 min. dropwise with 11 g. MeI, [illegible]

0.5 hr., and kept 12 hrs. at [illegible]° yielded 24 g. VIII (R = Ph, [illegible], m. 196° (MeOH). IX (1 g.) and 10 cc. BuNH2 refluxed 5 hrs. yielded [illegible] g. III (R = Me, R1 = Bu), m. [illegible]° (MeOH). IX (1 g.) with 4 cc. BuNH2 heated 5 hrs. at 170° gave 1.5 g. III (R = Me, R1 = Ph), m. 235-6° (MeOH). IX (1 g.) with 4 cc. BuNH2 [illegible] similarly 1.3 g. III (R = Me, R1 = PhCH2), m. [illegible]°. X (1.17 g.) and 15 cc. BuNH2 refluxed 1 hrs. gave [illegible] g. III (R = Bu, R1 = Ph), m. 142° (MeOH). X (2.34 g.) and [illegible] refluxed 1 hr. yielded 1.3 g. III [illegible], m. [illegible]° (MeOH). X (1 g.) and 5 cc. morpholine heated 2 hrs. at 175° (MeOH). X (1 g.) and 5 cc. morpholine heated 2 hrs. at 110° yielded 0.9 g. 4-amino-3- morpholino-5-oxo-6-phenyl-4,5-dihydro- 1,2,4- triazine, m. 163° (MeOH). X (4 g.) in 20 cc. PrNH2 heated 4 hrs. at 150° yielded 1.3 g. III (R = R1 = Ph) (XIV), m. 211.5° (MeOH). IX (1 g. and 1.1 g. 95% N2H4 in 30 cc. **abs**. iso-PrOH refluxed 4 hrs. gave 0.85 g. III (R = Me, R1 = NH2), m. 288-9° (MeOH). [EtSC(NH2):NNH2]Br (10 g.) in 250 cc. H2O treated 24 hrs. at room temperature with 35 cc. 80% N2H4.H2O yielded 66 g. HN:C(NHNH2)2.HBr (XV), m. [illegible] (MeOH). X (17 g.) in 100 cc. H2O heated 15 min. at 90° with 7.5 g. AcCH2CO2H yielded 12.4 g. III (R = Me, R1 = H) (XVI), m. 245° (HCl). XV (4.3 g.) in a little H2O with 3.8 g. BzCH2CO2H in MeOH heated briefly gave 2 g. III (R = Ph, R1 = H) (XVII), m. 234-6° (decomposition). XVI (1 g.) and 3 cc. 99% HCO2H refluxed 4 hrs. yielded 1.55 g. IV (R = Me, R1 = R2 = H), m. 250-1° (HCl). XVI (1 g.) and 5 cc. Ac2O refluxed 3 hrs. yielded 0.7 g. IV (R = R1 = Me, R2 = H), m. 250-3°. XI (0.5 g. and 1 cc. HCO2H refluxed 2 min. yielded 0.5 g. IV (R = Me, R1 = PhCH2, R2 = H), m. 192° (H2O). XII (1 g.) in 10 cc. HCO2H refluxed 48 hrs. gave 1.2 g. IV (R = Ph, R1 = Bu, R2 = H), m. 186° (MeOH). XII (0.5 g.) gave similarly 0.4 g. IV (R = R1 = Ph, R2 = H), m. 222° (iso-PrOH). XIII (1 g.) and 10 cc. HCO2H refluxed 3 hrs. yielded 0.4 g. IV (R = Ph, R1 = PhCH2, R2 = H), m. 181-2° (MeOH). XIII (0.5 g. yielded similarly with 5 cc. Ac2O 0.15 g. IV (R = Ph, R1 = H, R2 = Me), m. 247-8°. XVI (1 g.) in 60 cc. MeOH refluxed with 1.4 g. BzCH2Br yielded 0.7 g. XVIII, m. 291-2° (HCONMe2). XIV (1 g.) and 10 cc. Ac2O heated 1 hr. at 135° yielded 0.7 g. solid, C11H8N4O2, m. 214° (MeOH), presumably a pyrazolo-as-triazine, and 1 g. light yellow prisms, C19H17N5O2, m. 123°, a di-Ac compound XXVIII. 1,2,4-Triazines. 2. Preparation of some new s-triazolo[4,3-b]-astriazines. Alfred Dornow, Werner Abelle, and Herbert Menzel. Ibid. 2179-84. 3-Hydrazino-1,2,4-triazines with CS2, urea, or HOCN yielded s-triazolo[4,3-b]-as-triazines. 3-Methylthio-5,6-diphenyl-as-triazine (10 g.) and 10 cc. 80% N2H4.H2O in 200 cc. iso-PrOH refluxed 12 hrs. yielded 10 g. 3-hydrazino-5,6-diphenyl-as-triazine (I), m. 170° (MeOH). I and aldehydes or ketones in EtOH refluxed 2 hrs. gave in most cases nearly quant. the 3,5-diphenyl-1,2,4-triazin-3-ylhydrazones of the following compds. (m.p. given): PrCHO, 225° (MeOH; BzH, 234° (HCONMe2); p-MeOC6H4CHO, 268° (HCONMe2); furfural, 233° (EtOH); MeCOMe, 198° (Me2CO); AcPh, 210° (iso-PrOH); BzPh, 211° (iso-PrOH); cyclohexanone, 202° (iso-PrOH). 3-Methylthio-5-oxo-6-methyl-4,5-dihydro-1,2,4-triazine (1.0 g. in 60 cc. iso-PrOH refluxed 5 hrs. with [illegible] N2H4.H2O gave MeSH and 1.0 g. 5-oxo-6-hydrazino-6-methyl-4,5-dihydro-1,2,4-triazine (III, m. 244°. II (1 g.) in 100 cc. boiling MeOH treated with 2.1 g. p-C6H4(CHO)2 (III) yielded 1.3 g. 5-oxo-6-methyl-4,5-dihydro-1,2,4-triazin-3-ylhydrazone of III, m. 331° (HCONMe2). Similarly was prepared the analogous derivative of p-MeOC6H4CHO, m. 305° (HCONMe2), in 96% yield. IV (R = EtO, R1 = SH) (1 g.) and NaOEt from 1.5 g. Na and 20 cc. absolute EtOH treated 48 hrs. with 8 g. MeI gave 8.5 g. IV (R = EtO, R1 = MeS)(V),m. 141-3° (H2O). IV(R = OH, R1 = MeS) (1 g.) and 15 cc. concentrated H2SO4 in 400 cc. absolute EtOH refluxed 5 hrs. yielded 8.2 g. V, m. 142° (H2O). V (2 g.) in 100 cc. iso-PrOH refluxed 5 hrs. with 5 cc. 98% N2H4 yielded 1.4 g. IV (R = R1 = NHNH2), did not melt up to 300° (aqueous MeOH). IV (R = OH, R1 = Ph) [illegible]

and 6 g. ClCH2CO2H in 60 cc. H2O refluxed 3 hrs. yielded 1.4 g. [illegible] R1 = OH, R2 = CH2CO2H), decomposes 238° (H2O). I, 11 g., [illegible], and C5H5N refluxed 10 hrs. yielded 10.5 g. VI [illegible], m. 298-300° (HCONMe2). I, C5H5N, and CS2 deposited at room temperature a yellow precipitate, m. 190°, which heated in MeOH decomposed into components. II (8 g.), 250 cc. C5H5N, and 7 cc. [illegible] then heated about 60 hrs. on a water bath until the [illegible] yielded 5.1 g. VI (R = Me, R1 = OH), VIII, decomposes 310-20° (MeOH). 4,5-Diamino- -thioxo-2,3-dihydro-1,2,4-triazole (1.31 g.) in 60 cc. H2O refluxed 5 hrs. with 0.45 g. AcCO2H yielded 1.2 g. VIII, decomposes 305-6° (MeOH). VII (5 g.) in 500 cc. 5% aqueous K2CO3 treated 6 hrs. with 5 g. MeI gave 5 g. IX R, R1= Ph, R2 = Me), decomposes 197° (MeOH). VIII (3g.) in 10 cc. 4% aqueous NaOH shaken 0.5 hr. with 1.5 cc. MeI and adjusted to pH 6 with AcOH yielded 2.8 g. IX (R = (R2 = Me, R1 = OH) (X), m. 256-7° (MeOH). 4,5-Diamino-3-methylthio-1,2,4-triazole (1.45 g.) in 100 cc. H2O refluxed about 3 hrs. with 0.95 g. AcCO2H gave 1.51 g. X, m. 256-8° (MeOH). VII (2 g.) and 11 g. ClCH2CO2H in 100 cc. 70% AcOH refluxed 4 hrs. gave 1 g. IX (R = R1 = Ph, R2 = CH2CO2H) (XI, m. 236° (AcOH); Me ester m. 161° (MeOH). VIII (4 g.) and 40 cc. 10% aqueous ClCH2CO2H refluxed 1 hr. yielded 4.2 g. IX (R = Me, R1 = OH, R2 = CH2CO2H), m. 234° (H2O). XI (1 g.) in 50 cc. 10% aqueous KOH refluxed 1 hr. gave 0.7 g. orange-red 5-hydroxy-6,7-diphenyl-s-triazolo[4,3-a]-as-triazine (XII, decomposes 270-5° (MeOH), 1 g., and 3 g. urea heated 10 min. at 220° yielded 0.4 g. XII, decomposes 270° (MeOH). I (5 g.) in 15 cc. concentrated HCl diluted with ice, filtered, and

the residue dissolved in 1 l. H2O and treated dropwise with 1.5 g. NaNO2 in 10 cc. H2O gave 3 g. 3-benzcarbazono-5,6-diphenyl-2,3-dihydro-as-triazine (XIII, decomposes 200-5° (H2O). XIII (5 g.) heated 20 min. at 220° yielded 3 g. XII, decomposes 275-80° (MeOH). XXIX. 1,2,4-Triazines. 3. Alfred Dornow, Herbert Menzel, and Paul Marx. Ibid. 2105-7. The preparation of I, II (R = Me) (III), II (R = H) (IV), and V is described. 3-Methylthio-5-oxo-6,7-dimethyl-2,5-dihydro-1,2,4-triazine (VI, 6 g.) in 200 cc. absolute EtOH treated 48 hrs. at room temperature with 11 cc. 98% N2H4 yielded 6.5 g. 5-oxo-3-hydrazino-2,6-dimethyl-2,5-dihydro-1,2,4-triazine (VII), m. 241° (HCONMe2). VI (0.5 g.) in 400 cc. boiling MeOH treated with 0.4 g. BzH yielded 0.4 g. yellow 3-benzalhydrazono analog of VI, m. 234° (MeOH). VI (0.5 g.) and 5 cc. HCO2H refluxed 8 hrs. yielded 0.3 g. I, m. 131° (H2O). VI (1.55 g.) in 10 cc. 2N HCl treated dropwise slowly with stirring with 5% aqueous NaNO2 yielded 0.7 g. III, m. 101° (C6H6-petr. ether). 5-Oxo-3-hydrazino-6-methyl-1,3,4,5-tetrahydro-1,2,4-triazine (VII, 6 g.) in 50 cc. 2N HCl with 3 g. NaNO2 in 15 cc. H2O gave 4g. IV, m. 211° (MeOH). 5-Hydrazinotetrazole (1 g.) in 15 cc. hot H2O treated slowly with 0.86 g. AcCl2H gave 1.6 g. tris 5-tetrazolylhydrazone (VIII), m. 215° (decomposition) (MeOH, of AcCO2H. VIII (1 g.) and 3 cc. Ac2O heated to solution and kept 24 hrs. yielded IV, m. 217° (H2O), and some 5-acetamidotetrazole, m. 270° (decomposition) (Ac2O). VI (1.5 g.) treated 12 hrs. at room temperature with 100 cc. CH2N2-Et2O (from 10 g. HON:CNMeNO yielded 1.1 g. isomer of III, m. 210° (C6H6). VII (1 g.) in 20 cc. refluxing dioxane treated dropwise during 5 min. with 0.5 g. p-methoxyacetophenone yielded 0.5 g. 6-methoxyacetophenone 5-oxo-6-methyl-3,5-dihydro-1,2,4-triazin-3-ylhydrazone (IX), m. 194-5° (MeOH). VII (1 g.) in 50 cc. MeOH refluxed 1 hr. with 1.2 g. BzOCH2OMe yielded 1.4 g. IX, m. 196° (MeOH). VII (3.5 g.) and 6 g. BzOCH2Br in 15 cc. HCONMe2 heated 2 hrs. at 100° gave 5.2 g. 6-oxo-7-methyl-3-phenyl-4,9-dihydro-4H-as-triazino[4,3-b]-as-triazine, m. 301° (decomposition) (HCONMe2). XXX. 1,2,4-Triazines. 4. Preparation of 1,3,4-thiadiazolo[2,3-c]-as-triazines. Alfred Dornow and Paul Marx. Ibid. 2640-6. 3,4-Diamino-1,2,4-triazines and their 3-MeS analogs [illegible] CS2 in C5H5N with the elimination of amine or MESH, resp., the pyridinium salts I, II (R = Ph, R' = PhNH) (0.1 g.) in 30 cc. dry C5H5N treated 1 hr. with 10 cc. CS2 yielded 6.1 g. I (R = Ph) (III), m. 270° (H2O). II

(R = Ph, R' = MeS) (5.0 g.), 50 cc. C5H5N, and 10 cc. CS2 refluxed [illegible]
and kept 12 hrs. at room temperature yielded 6.2 g. III. III (5.0 g.) [illegible]
cc.
boiling H2O adjusted with concentrated HCl to pH 1 yielded 3.[illegible] g. [illegible]
R = Ph) (V), m. 245° (decomposition) (1:1 HCONMe2-MeOH). II (R = Me,
R' = PhNH) (5.0 g.) in 60 cc. dry C5H5N treated 12 hrs. at room temperature
with
[illegible] cc. CS2 yielded 6.[illegible] g. I (R = Me) (VI), m. 216° (decomposition,
MeOH). II (R = Me, R' = MeS) (5 g.), 40 cc. C5H5N, and [illegible] cc. CS2
refluxed 3 hrs. yielded about 8 g. VI. VI (5.0 g.) in 50 cc. boiling H2O
adjusted with concentrated HCl to pH 1 gave 3.6 g. IV (R = Me, VIII, m.
240-1° (decomposition) H2O). V in aqueous NaOH heated briefly yielded [illegible]
VIII (R = Ph) (IX), m. 244° (decomposition) (1:1 aqueous MeOH).
5-Hydrazono-2-thioxo-1,3,4-thiadiazolid.ne-HCl (X.HCl) in hot [illegible]
with aqueous NaHCO3 and treated with BaCO2H gave quant. IX. VII [illegible]
dilute aqueous NaOH and acidified gave quant. VIII (R = Me), XI, m.
215-18° (H2O). VII refluxed 1 hr. with dilute HCl gave 100% XI. X in
hot H2O treated dropwise with BaCO2H gave quant. XI, m. 217-19°
(H2O). XII (2 g.) in 15 cc. Ac2O refluxed 5 min. gave 2 g. XII (R = Ph, R'
= Ac) (XIII), m. 215° (decomposition) (Ac2O). XIII (1.00 g.) in 15 cc.
MeOH refluxed 15 min. gave 1.01 g. V, m. 242°. V (1.5 g.) with 1.2
g. Na2CO3 in 7 cc. H2O yielded 1.5 g. yellow XIV (R = Ph) (XV), m.
192° (decomposition) (H2O). Similarly was prepared the pale yellow XIV (R
= Me) (XVI), m. 265° (decomposition) (H2O). XV (2.5 g.) in 250 cc. H2O
treated dropwise with stirring with 1.4 g. MeI and stirred 2 hrs. at room
temperature gave 1.5 g. XII (R = Ph, R' = Me), m. 165° (C6H6-petr.
ether). XVI (2.0 g.) and 1.7 g. MeI gave similarly 1.5 g. XII (R = R' =
Me), m. 191-6° (H2O). V (1.0 g.) and 150 cc. aqueous Na2CO3 heated to
80-90°, treated dropwise with 1.0 g. MeI, and heated 0.5 hr. on
water bath gave 1.9 g. XVII (R = Ph, R' = Me), m. 215-19° (AcOH).
VII (1.5 g.) in 20 cc. 1 N aqueous NaOH shaken with 1.2 g. MeI, kept 1 hr.,
and acidified with HCl to pH 5 gave 1.1 g. XVII (R = R' = Me), m.
217-18° (H2O). XV (1.0 g.) in 10 cc. HCONMe2 refluxed 5 min. with
0.5 g. PhCH2Cl yielded 1.15 g. XII (R = Ph, R' = PhCH2), m. 168°
(C6H6-petr. ether). XVI (1.0 g.) in 6 cc. HCONMe2 refluxed a few min. with
0.7 g. PhCH2Cl yielded 1.05 g. XII (R = Me, R' = PhCH2), m. 171°
(MeOH). VII (1.0 g.) in 10 cc. 10% ClCH2CO2H refluxed 15 min. gave 1.3 g.
XVII (R = Me, R' = CH2CO2H), m. 219-21° (decomposition, (H2O). XV (1.0
g.) in 10 cc. HCONMe2 refluxed briefly with 1.5 g. ClCH2CO2H gave 1.85 g.
XII (R = Ph, R' = CH2CO2H (XVIII), m. 220° (MeOH). XVI (1.0 g.)
and 0.5 g. ClCH2CO2H gave similarly 0.75 g. XII (R = Me, R' = CH2CO2H), m.
207° (H2O). XVIII (1 g.) and 30% aqueous NaOH refluxed 5 hrs. and
acidified yielded 1 g. XVII (R = Ph, R' CH2CO2H), m. 197°
(decomposition) (AcOH). XVI (1.0 g.) in 40 cc. H2O treated dropwise with Iodine
in MeOH until the color persisted gave 0.8 g. XIX, m. 200°
(decomposition).

IT **89715-26-4**, Pyruvic acid, azine with S-Me thiocarbazate
(preparation of)

=> sel hit rf
E1 THROUGH E16 ASSIGNED

=> file reg
FILE 'REGISTRY' ENTERED AT 10:58:01 ON 12 DEC 2002
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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STRUCTURE FILE UPDATES: 11 DEC 2002 HIGHEST RN 475975-28-9

DICTIONARY FILE UPDATES: 11 DEC 2002 HIGHEST RN [illegible]

NSCA INFORMATION NOW CURRENT THROUGH MAY [illegible]

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Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP PROPERTIES for more information. See STNote 27, Searching Properties in the CAS Registry File, for complete details:
http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf

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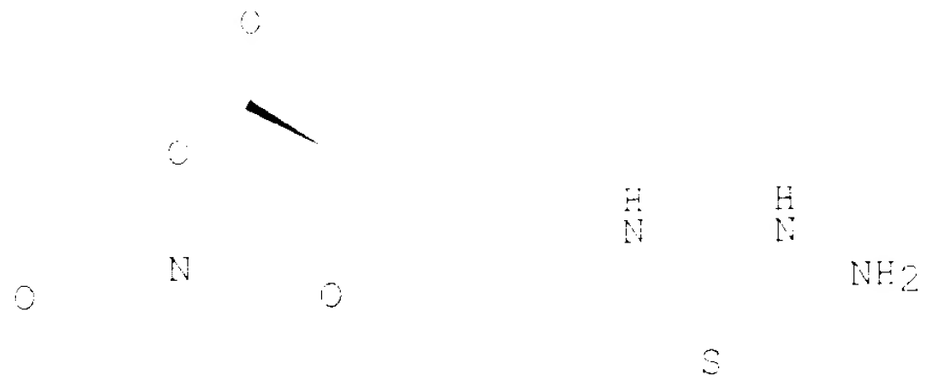
L20 ANSWER 1 OF 16 REGISTRY COPYRIGHT 2002 ACS
RN **362522-51-8** REGISTRY
CN Hydrazinecarbothioamide, N-[[trans-4-[[(2,5-dioxo-1-pyrrolidinyl)oxy]carbonyl]cyclohexyl]methyl]- (CA INDEX NAME)
FS STEREOSEARCH
MF C13 H20 N4 O4 S . Cl H
SR CA

LC STN Files: CA, CAPLUS, USPATFULL

Relative stereochemistry.



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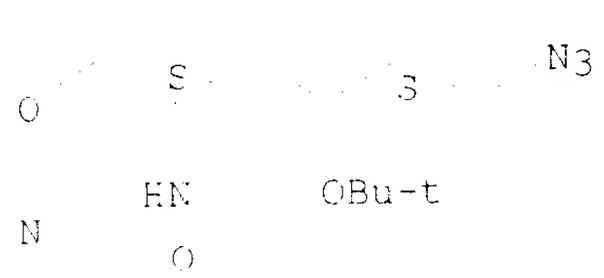
1 REFERENCES IN FILE CA (1962 TO DATE)
1 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 135:272864

L20 ANSWER 2 OF 16 REGISTRY COPYRIGHT 2002 ACS
RN **144090-64-2** REGISTRY
CN Carbamic acid, [5-azido-1-[[(2,5-dioxo-1-pyrrolidinyl)oxy]carbonyl]-4-(phenylmethoxy)pentyl]-, 1,1-dimethylethyl ester, [S-(R*,R*)]- (9CI) (CA INDEX NAME)
FS STEREOSEARCH
MF C22 H29 N5 O7
SR CA
LC STN Files: CA, CAPLUS, CASREACT

Absolute stereochemistry.



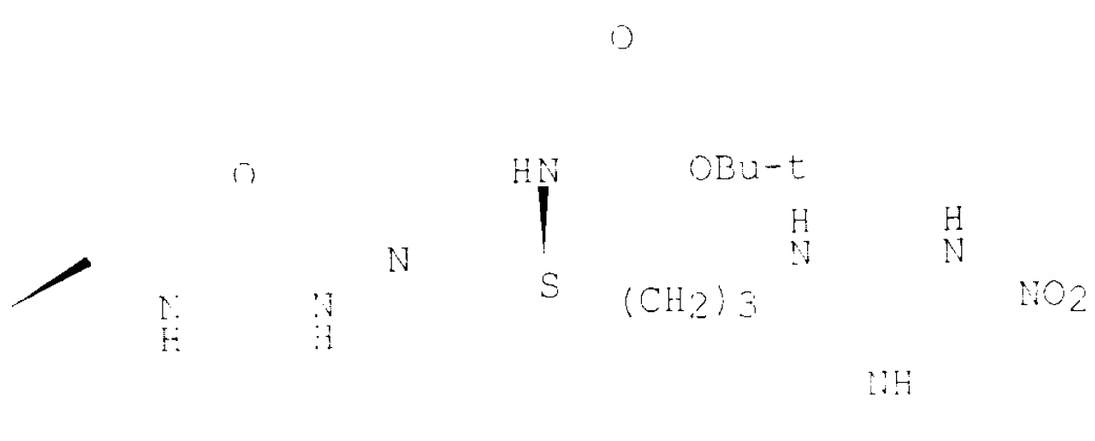
1 REFERENCES IN FILE CA (1962 TO DATE)
1 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 117:212932

L20 ANSWER 3 OF 16 REGISTRY COPYRIGHT 2002 ACS
RN **139976-30-0** REGISTRY
CN Cyclohexanecarboxylic acid, 4-[(7S)-7-[3-[[imino(nitroamino)methyl]amino]propyl]-11,11-dimethyl-3,9-dioxo-10-oxa-2,4,5,8-tetraazadodec-5-en-1-yl]-, trans- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Cyclohexanecarboxylic acid, 4-[7-[3-[[imino(nitroamino)methyl]amino]propyl]-11,11-dimethyl-3,9-dioxo-10-oxa-2,4,5,8-tetraazadodec-5-en-1-yl]-, [4(S)-trans]-

FS STEREOSEARCH
MF C20 H30 N8 O4
SR CA
LC STN Files: BEILSTEIN*, CA, CAPLUS, USPATFULL
*File contains numerically searchable property data

Absolute stereochemistry.
Double bond geometry unknown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

15 REFERENCES IN FILE CA (1962 TO DATE)
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15 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 132:214148

REFERENCE 2: 131:229021

REFERENCE 3: 130:213649

REFERENCE 4: 127:110992

REFERENCE 5: 126:131749

REFERENCE 6: 125:146381

REFERENCE 7: 124:344121

REFERENCE 8: 124:176349

REFERENCE 9: 122:133851

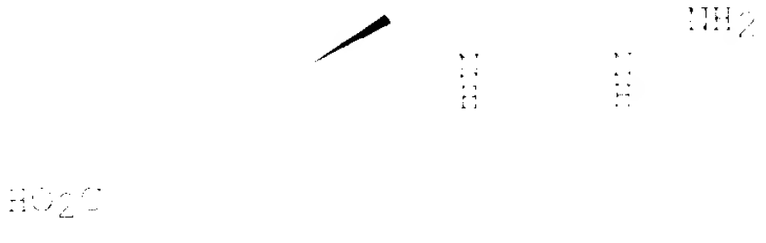
REFERENCE 10: 121:212800

L20 ANSWER 1 OF 16 REGISTRY COPYRIGHT 2002 ACS
RN **139976-29-7** REGISTRY
CN Cyclohexanecarboxylic acid, 4-[[(hydrazinocarbonyl)amino]methyl]-, trans-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)
FS STEREOSEARCH
MF C9 H17 N3 O3 . C2 H F3 O2
SR CA
LC STN Files: CA, CAPLUS, USPATFULL

CM 1

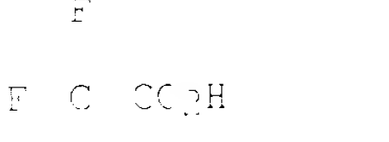
CRN 139976-28-6
CMF C9 H17 N3 O3

Relative stereochemistry.



CM 2

CRN 76-05-1
CMF C2 H F3 O2



20 REFERENCES IN FILE CA (1962 TO DATE)
2 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
20 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 137:115292

REFERENCE 2: 137:125391

REFERENCE 3: 137:125099

REFERENCE 4: 137:109484

REFERENCE 5: 137:33541

REFERENCE 6: 134:281136

REFERENCE 7: 134:17726

REFERENCE 8: 133:17829

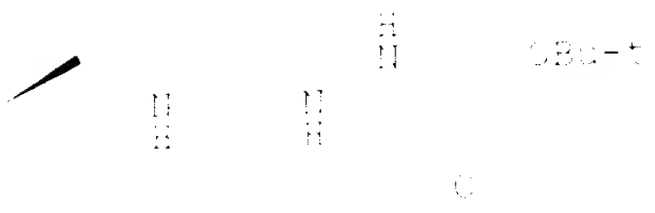
REFERENCE 9: 132:251428

REFERENCE 10: 130:223589

L20 ANSWER 5 OF 16 REGISTRY COPYRIGHT 2002 ACS
RN **139976-27-5** REGISTRY
CN Hydrazinecarboxylic acid, 2-[[[(trans-4-carboxycyclohexyl)methyl]amino]carbonyl]-, 1-(1,1-dimethylethyl) ester (9CI)
OTHER CA INDEX NAMES:
CN Hydrazinecarboxylic acid, 2-[[[(4-carboxycyclohexyl)methyl]amino]carbonyl]-, 1-(1,1-dimethylethyl) ester, trans-
FS STEREOSEARCH
MF C14 H25 N3 O5
SR CA
LC STN Files: BEILSTEIN*, CA, CAPLUS, USPATFULL
*File contains numerically searchable property data

Relative stereochemistry.

RUSSEL [illegible]



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21 REFERENCES IN FILE CAPLUS (1962 TO DATE)

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REFERENCE 2: 134:2.1136

REFERENCE 3: 134:11597.0

REFERENCE 4: 133:202750

REFERENCE 5: 132:261428

REFERENCE 6: 131:329021

REFERENCE 7: 130:123539

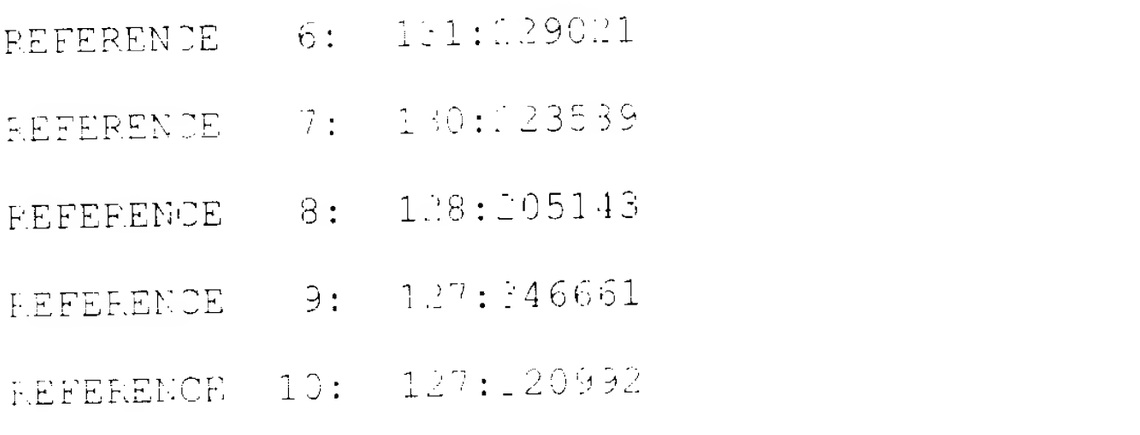
REFERENCE 8: 128:205143

REFERENCE 9: 127:346661

REFERENCE 10: 127:120992

L20 ANSWER 6 OF 16 REGISTRY COPYRIGHT 2002 ACS
RN **139976-26-4** REGISTRY
CN Hydrazinecarboxylic acid, 2-[[[[trans-4-[(phenylmethoxy carbonyl]amino]cyclohexyl]methyl]amino]carbonyl]-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Hydrazinecarboxylic acid, 2-[[[[4-[(phenylmethoxy carbonyl]amino]cyclohexyl]methyl]amino]carbonyl]-, 1,1-dimethylethyl ester, trans-
FS STEREOSEARCH
MF C21 H31 N3 O5
SR CA
LC STN Files: BEILSTEIN*, CA, CAPLUS, USPATFULL
(*File contains numerically searchable property data)

Relative stereochemistry.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

19 REFERENCES IN FILE CA (1962 TO DATE)
19 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 132:251424

REFERENCE 2: 131:229031

REFERENCE 3: 130:223589

REFERENCE 4: 130:129401

REFERENCE 5: 129:205143

REFERENCE 6: 127:346661

REFERENCE 7: 127:229992

REFERENCE 8: 126:131713

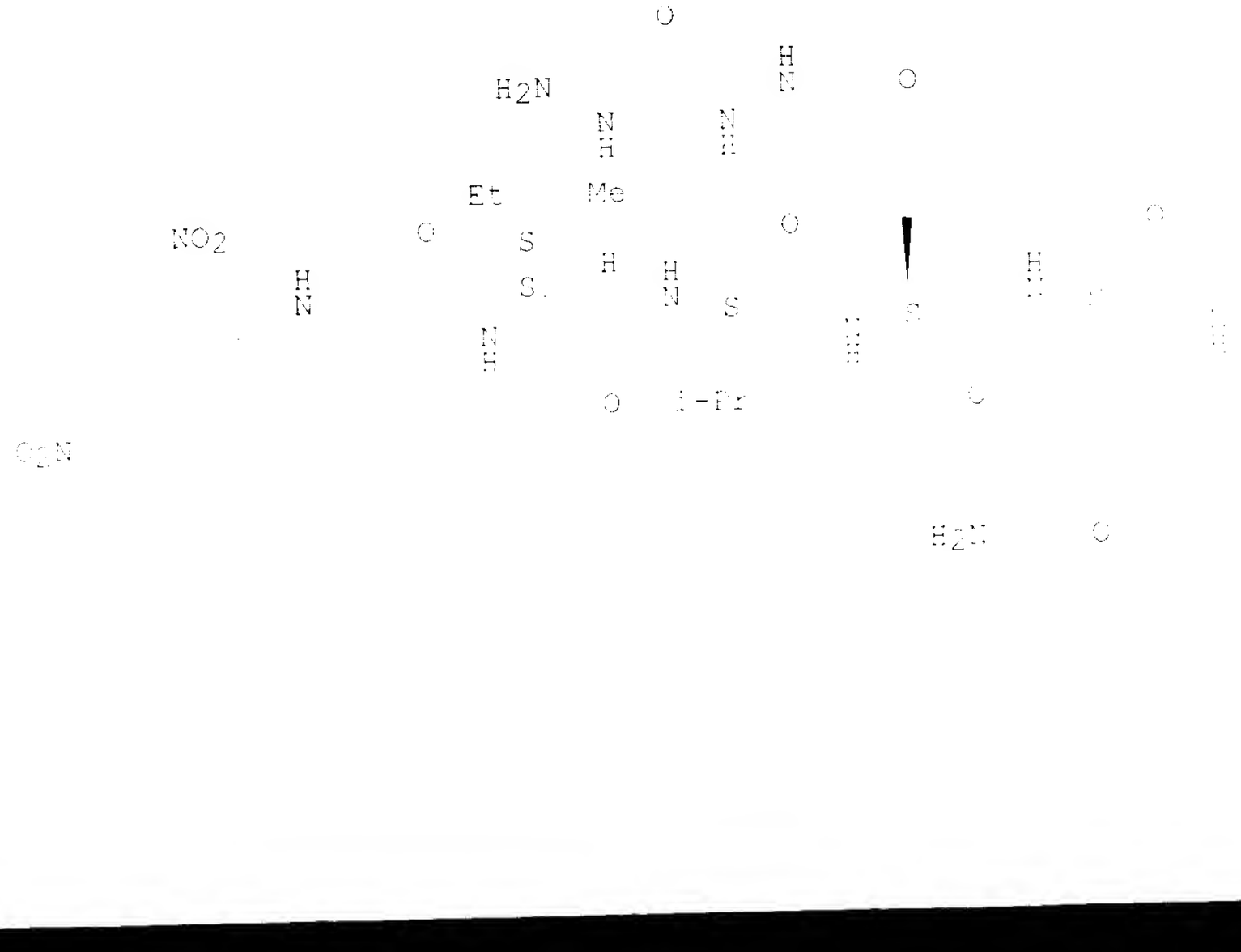
REFERENCE 9: 125:196383

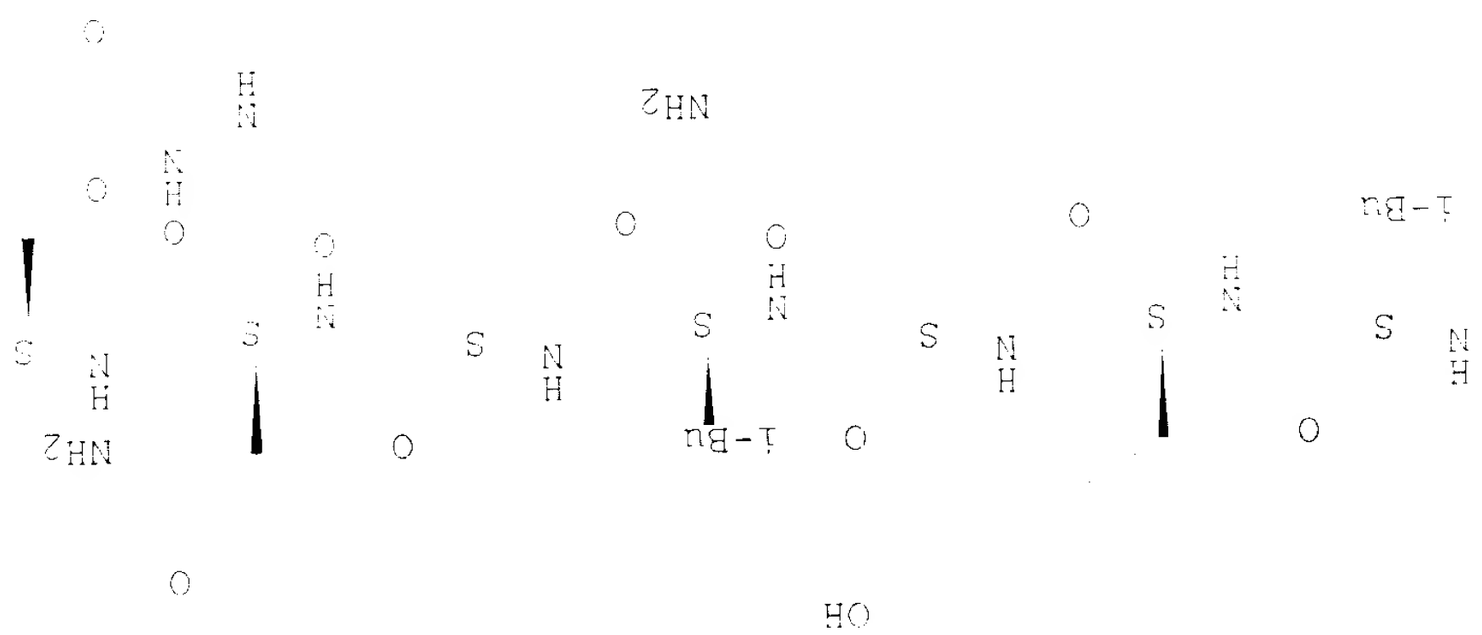
REFERENCE 10: 124:344129

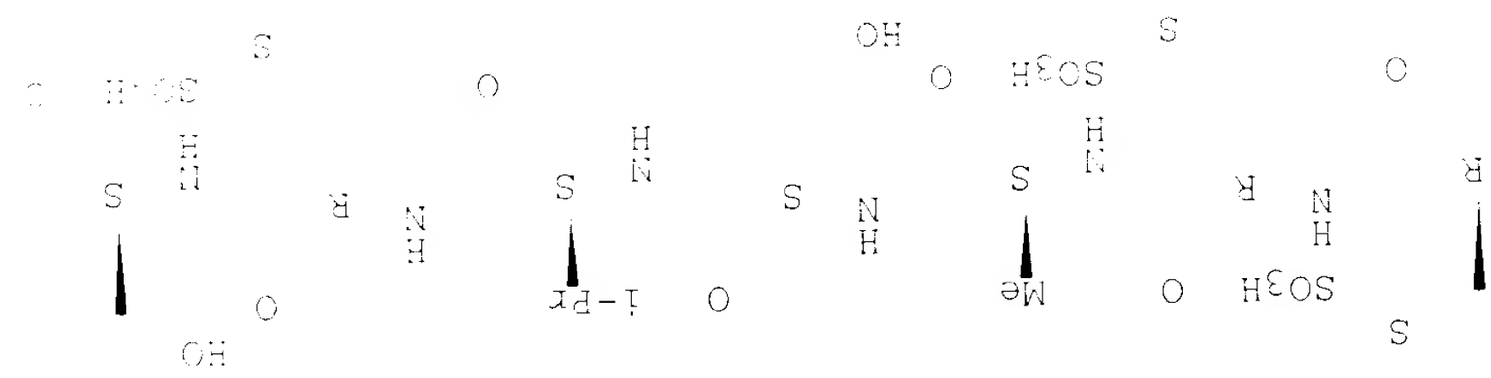
L20 ANSWER 7 OF 16 REGISTRY COPYRIGHT 2002 ACS
RN **134664-50-9** REGISTRY
CN Insulin (cattle-A reduced), N-(2,4-dinitrophenyl)-, tris(2-(hydrazinocarbonyl)hydrazide], 6,7,11,20-tetrakis(hydrogen sulfate) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Insulin (ox-A reduced), N-(2,4-dinitrophenyl)-, tris(2-(hydrazinocarbonyl)hydrazide], 6,7,11,20-tetrakis(hydrogen sulfate)
FS PROTEIN SEQUENCE; STEREOSEARCH
MF C106 H165 N39 O50 S6
SR CA
LC STN Files: CA, CAPLUS

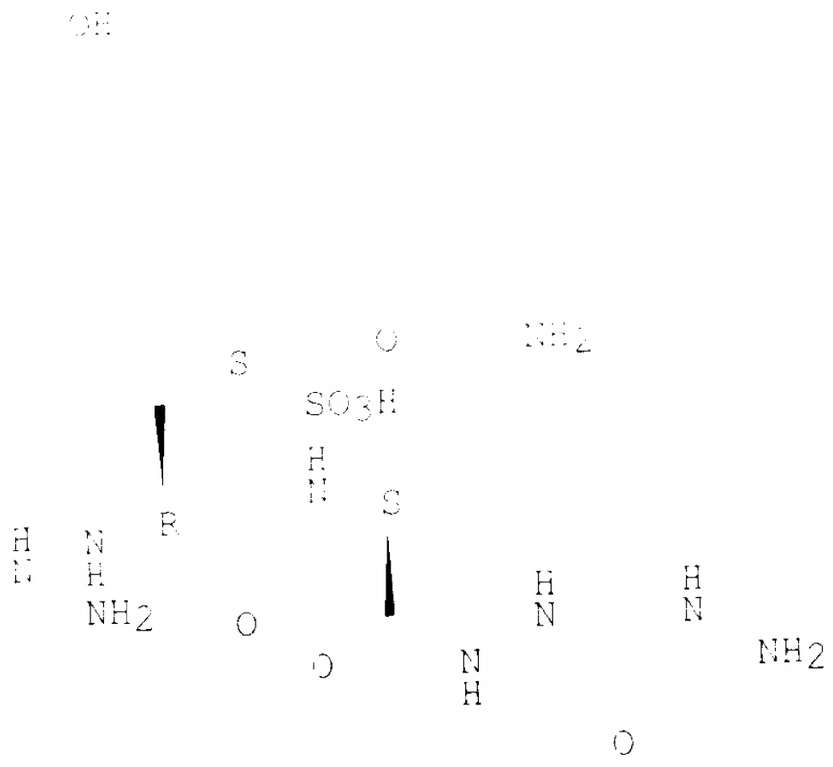
Absolute stereochemistry.

PAGE 1-A





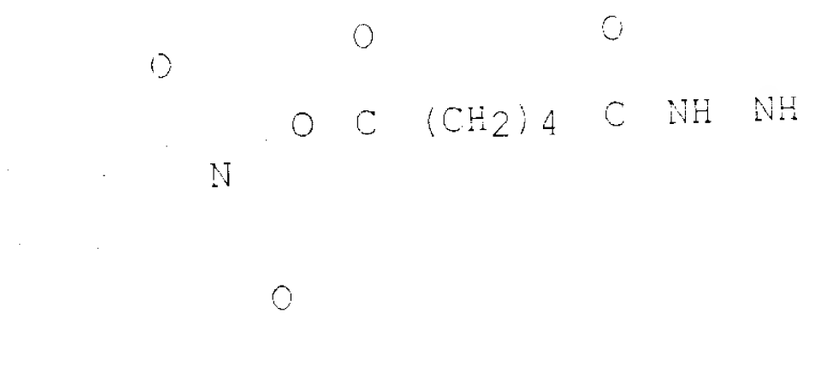




1 REFERENCES IN FILE CA (1962 TO DATE)
1 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 115:25407

L20 ANSWER 8 OF 16 REGISTRY COPYRIGHT 2002 ACS
RN **127381-73-1** REGISTRY
CN Hexanoic acid, 6-[(1,3-dihydro-1,3-dioxo-2H-isoindol-2-yl)oxy-[(4-methyl-
2-(triphenylmethyl)hydrazide (9CI) (CA INDEX NAME)
MF C33 H29 N3 O5
SR CA
LC STN Files: CA, CAPLUS, TOXCENTER

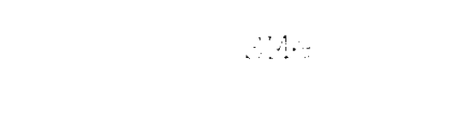


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

1 REFERENCES IN FILE CA (1962 TO DATE)
1 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 113:2671

L20 ANSWER 9 OF 16 REGISTRY COPYRIGHT 2002 ACS
RN **89715-26-4** REGISTRY
CN Pyruvic acid, azine with S-methyl thiocarbazate (7CI) (CA INDEX NAME)
PS 3D CONCORD
MF C5 H10 N4 O2 S
LC STN Files: BEILSTEIN*, CA, CAOLD, CAPLUS, CASREACT
(*File contains numerically searchable property data)

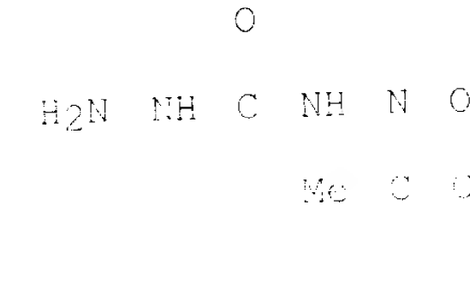


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

1 REFERENCES IN FILE CA (1962 TO DATE)
1 REFERENCES IN FILE CAPLUS (1962 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1962

REFERENCE 1: 61:69149

L20 ANSWER 10 OF 16 REGISTRY COPYRIGHT 2002 ACS
RN 50883-75-5 REGISTRY
CN Carbonic dihydrazide, (1-methyl-2-oxopropylidene)- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN (α-Acetylethylidene)carbonohydrazide
FS 3D CONCORD
MF C5 H10 N4 O2
LC STN Files: BEILSTEIN*, CA, CAPLUS, TOXCENTER
(*File contains numerically searchable property data)

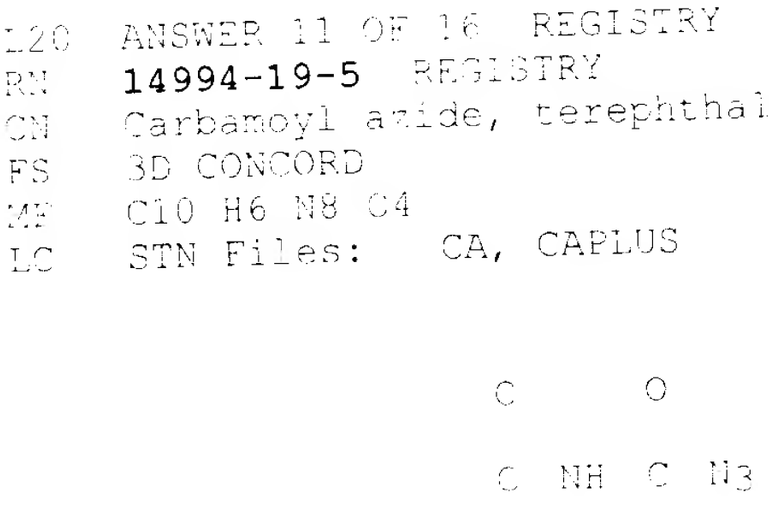


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

1 REFERENCES IN FILE CA (1962 TO DATE)
1 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 80:48710

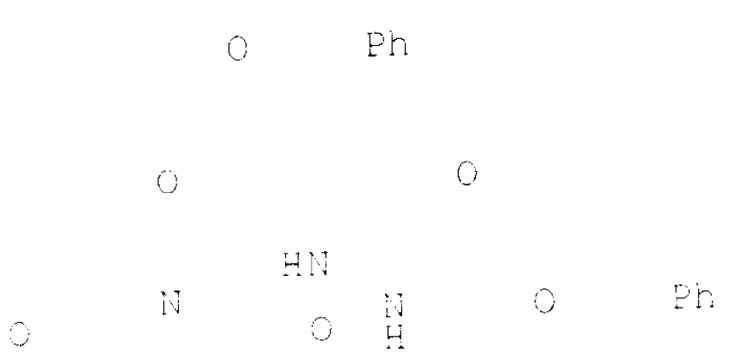
L20 ANSWER 11 OF 16 REGISTRY COPYRIGHT 2002 ACS
RN 14994-19-5 REGISTRY
CN Carbamoyl azide, terephthaloyldi- (8CI) (CA INDEX NAME)
FS 3D CONCORD
MF C10 H6 N8 O4
LC STN Files: CA, CAPLUS



1 REFERENCES IN FILE CA (1962 TO DATE)
1 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 66:[illegible]

L20 ANSWER 14 OF 16 REGISTRY COPYRIGHT 2002 ACS
RN **14381-17-0** REGISTRY
CN Succinimide, N-[[α-(2-carboxyhydrazino)hydr[illegible], DL-, [illegible] ester, DL- (8CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Hydrocinnamic acid, α-(2-carboxyhydrazin[illegible], α-[illegible], O-succinimido deriv., DL-
MF C21 H21 N3 O6
LC STN Files: BEILSTEIN*, CA, CAPLUS
(*File contains numerically searchable property data



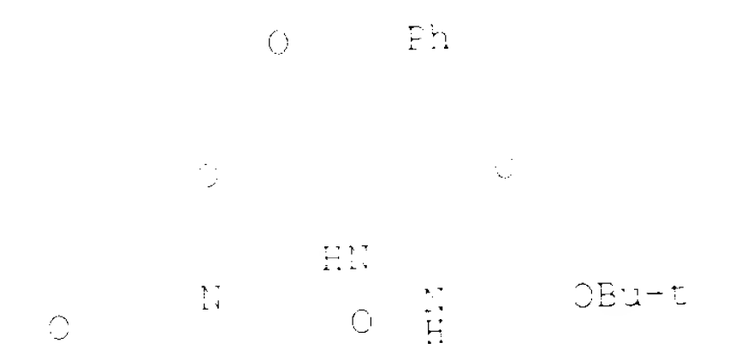
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

2 REFERENCES IN FILE CA (1962 TO DATE)
2 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 67:117258

REFERENCE 2: 66:55728

L20 ANSWER 13 OF 16 REGISTRY COPYRIGHT 2002 ACS
RN **14381-16-9** REGISTRY
CN Succinimide, N-[[α-(2-carboxyhydrazino)hydrocinnamoyl]oxy]-, tert-butyl ester (8CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Hydrocinnamic acid, α-(2-carboxyhydrazino)-, α-tert-butyl ester, O-succinimido deriv., DL-
MF C25 H23 N3 O6
LC STN Files: BEILSTEIN*, CA, CAPLUS
(*File contains numerically searchable property data

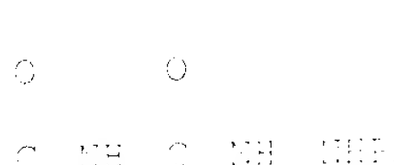


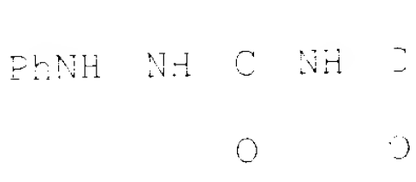
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

[illegible]

REFERENCE 1: [illegible]

L20 ANSWER 14 OF 16 REGISTRY COPYRIGHT 2002 ACS
RN 13506-12-2 REGISTRY
CN Semicarbazide, 4,4'-phthaloylbis[1-phenyl- (8CI) (CA INDEX NAME)
OTHER NAMES:
CN Carbamic acid, terephthaloyldi-, bis(2-phenylhydrazide)
FS 3D CONCORD
MF C22 H20 N6 O4
LC STN Files: BEILSTEIN*, CA, CAPLUS
(*File contains numerically searchable property data)





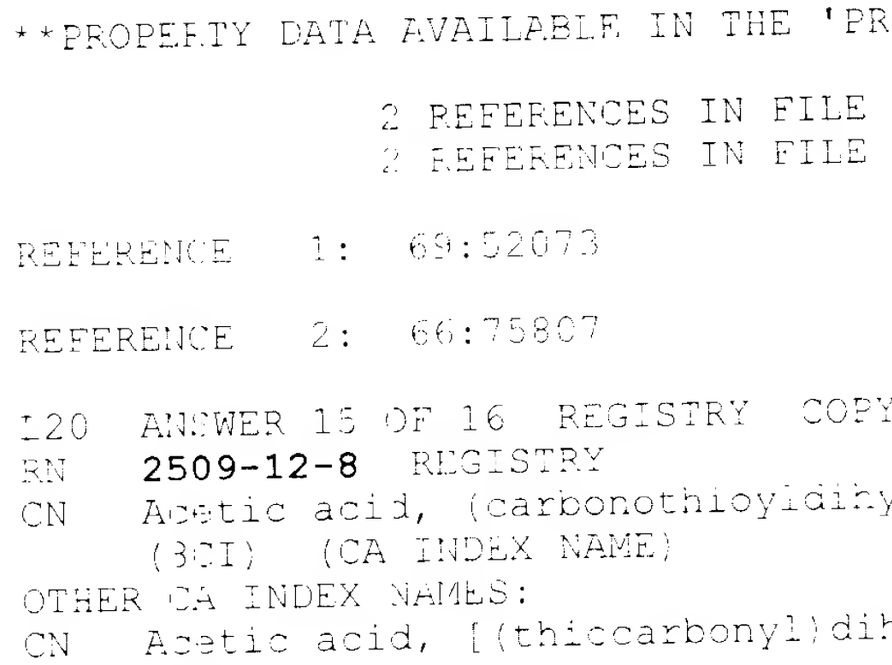
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

2 REFERENCES IN FILE CA (1962 TO DATE)
2 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 69:52073

REFERENCE 2: 66:75807

L20 ANSWER 15 OF 16 REGISTRY COPYRIGHT 2002 ACS
RN 2509-12-8 REGISTRY
CN Acetic acid, (carbonothioyldihydrazinylylidene)tetra-, tetramethyl ester (8CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Acetic acid, [(thiocarbonyl)dihydrazinylylidene]tetra-, tetramethyl ester (7CI)
FS 3D CONCORD
MF C13 H22 N4 O8 S
LC STN Files: BEILSTEIN*, CA, CAOLD, CAPLUS
(*File contains numerically searchable property data)



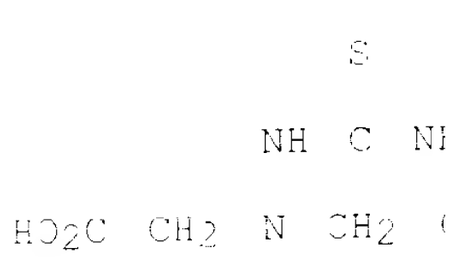
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

2 REFERENCES IN FILE CA (1962 TO DATE)
2 REFERENCES IN FILE CAPLUS (1962 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 63:38638

REFERENCE 2: 63:38638

L20 ANSWER 16 OF 16 REGISTRY COPYRIGHT 2002 ACS
RN **2215-00-1** REGISTRY
CN Acetic acid, 2,2',2'',2'''-(carbonothioylbis(2-hydrazinyl-1-
ylidene))tetrakis- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Acetic acid, (thiocarbonyl)dihydrazinylylidene]tetra- (7CI, 8CI)
OTHER NAMES:
CN 1,5-Thiocarbonohydrazidotetracetic acid
FS 3D CONCORD
MF C9 H14 N4 O8 S
LC STN Files: BEILSTEIN*, CA, CAOLD, CAPLUS
(*File contains numerically searchable property data)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

3 REFERENCES IN FILE CA (1962 TO DATE)
3 REFERENCES IN FILE CAPLUS (1962 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 78:158585

REFERENCE 2: 72:8987

REFERENCE 3: 63:38638